Bonneville Power Administration, Burley Substation
(Burley Substation)
1221 Albion Avenue
Burley
Cassia County
Idaho

HAER No. ID-22

HAER
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16-BURL,
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Regional Office
National Park Service
U.S. Department of the Interior
San Francisco, California 94102

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16-BURL
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HISTORIC AMERICAN ENGINEERING RECORD

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HAER No. ID-22

Location: 1221 Albion Avenue
Burley, Cassia County, Idaho

UTM: 12.270820.4713060
Quad: Burley SE

Date of Construction: 1913-1914. Significant alterations in 1921 and 1949

Engineers: United States Reclamation Service, William Lind, and the firm of Overstreet and Cooper

Present Owner: Bonneville Power Administration

Present Use: Vacant; slated for immediate demolition

Significance: The Burley Substation is significant as a distribution component of the United States Reclamation Service's Minidoka Project, which pioneered agricultural development and the market for commercial power in the Burley vicinity of southern Idaho during the early twentieth century. Its construction accelerated urban growth in Burley and electrical power transmitted through this station began to dominate the region's residential and commercial heating and power needs. Architecturally, the station is unique as the only brick substation in the Minidoka system and is representative of the changing nature of electrical power demand. The original 1913-constructed structure increased in size with a 1921 addition; however, materials, construction style, and continuity of design remained consistent between the two construction phases. Resident interior electrical components of the station evolved technologically during the station's operation, but at present all electrical transmission-related gear has been removed from the structure. Minidoka Dam, which generated the hydroelectric power distributed through the Burley Substation, has previously been included in the National Register of Historic Places.

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INTRODUCTION

The Bonneville Power Administration's (BPA) Burley Substation is located on Albion Avenue in the historic central business district of Burley, Idaho. Burley is located immediately south of the Snake River, which forms the boundary between Minidoka and Cassia counties in the southern portion of Idaho. The BPA currently owns the Burley Substation, but the structure was originally constructed as part of the United States Reclamation Service's (USRS) Minidoka Project. The Minidoka Project provided for:

> the diversion of waters of the Snake River by a combined storage, diversion, and power dam about 6 miles south of Minidoka, Idaho, into two canal systems, one on either side of the river, watering lands in the vicinity of Acequia, Rupert, Heyburn, and Burley, Idaho. Power developed at the dam is utilized primarily for pumping water from the canals to irrigate high lands, but also for pumping for drainage purposes, and for furnishing heat, light, and current for commercial use in the towns on the project and the farms adjacent to them.[1]

This federally-funded irrigation project for the lower Snake River valley was initiated in 1902 with the first surveys to evaluate the region's water storage possibilities. Construction was authorized by the Secretary of the Interior on April 23, 1904, and the Minidoka Dam was completed in September 1906.[2] The first irrigation season was in 1907. The Burley Substation was constructed in the latter portion of 1913 and its electrical components installed in early 1914.[3] Extant blueprints for the Burley Substation had not been located in United States Bureau of Reclamation (USBOR) records at the time of writing of this report. However, a schematic drawing of the Burley Substation Wiring Diagram, drawn in the Los Angeles office of the USRS, would seem to indicate that the Reclamation Service was responsible for the initial substation design.[4]

By June 30, 1915, ninety-five percent of the Minidoka Project, including drainage and commercial power, was complete.[5] The city of Burley and the Reclamation Service entered into a contract to enlarge the Burley station for their joint use, and construction was completed in 1921.[6] Use of the substation continued until the construction of a new exterior facility in 1949, the removal of the original station's transformers to Rupert, and Burley Substation's planned obsolescence.[7]

The demise of the Burley Substation will be forthcoming with scheduled demolition planned by BPA. Although changes relating to the industrial nature of the facility have occurred over the years, the Burley Substation retains good exterior integrity and, in its present condition, represents a structural chronicle of changing hydroelectric power distribution needs within the context of the historic Minidoka Project.

STRUCTURE DESCRIPTION AND LAYOUT

The Burley Substation is a two-story, rectangular, light-colored yellow brick structure that measures 25 feet wide and 72 feet long.[8] The structure appears to be the only commercial power substation constructed of brick for the Minidoka Project, other stations being constructed of concrete and steel, stone, or of the steel tower outdoor-type.[9] In its present configuration, the substation represents two separate construction phases (see HAER Photographs no. ID-22-3 and ID-22-7).

The front half was constructed in 1913 as a 25-foot by 40-foot building.[10] The initial structure was built by William Lind, a Norwegian-born masonry contractor.[11] Lind moved to Rupert, Idaho, from Livingston, Montana, circa 1905 and was identified with the construction of numerous buildings, especially in Rupert.[12] A commercial advertisement in the Rupert Pioneer Record for his services reads as follows:

William Lind
Rupert Building Contractor
Prepared to handle anything in the line of hrick,
concrete and cement block construction[13]

The appearance of the Burley Substation is distinctive, due in part to the use of yellow brick for its construction. It appears that the brick was produced by the Burley Brick and Sand Company. The company had started in Heyburn in 1909 along the banks of the Snake River by three brothers, Joseph, Herman and Victor Pullman. Originally named the Heyburn Brick and Tile Company, the firm changed its name after moving to East Main Street in Burley in 1917. At the company's beginning, it produced only tbe "well known yellow brick" and buildings constructed with this material include the Twin Falls Sugar Factory, Paul Sugar Factory, many of the region's early school houses, and early pioneer homes in the valley.[14] Later, the brickyard produced both red and the light-faced brick; the clay came from the Emerson district of Minidoka County, west of Paul, Idaho.[15] Brick production in 1913 at Heyburn was about three million bricks.[16] An undated USRS promotional handbill for the project advertised the brick company as an indication of Heyburn's commercial development: "at Heyburn is located a large brick plant which is the only brick plant of any consequence in the Snake River valley."[17]

In 1921, the structure was lengthened an additional 32 feet and a second story was added at the rear portion of the addition. The station rests on a poured concrete foundation with a concrete slab floor. All exterior walls are constructed of brick, laid in stretcher bond fashion with raked jointing. Decorative brick detailing on the facade include a corbelled parapet and a linear area of corbelling beneath the short parapet wall. The structure's roof is of reinforced concrete, configured as a poured slab supported by numerous poured-in-place concrete beams (see HAER Photograph no. ID-22-11). This concrete shed roof angles downward from south to north and drains into tbe alley on the building's north side.

Fenestration is confined to the structure's west, north, and east elevations (see HAER Pbotograph No. ID-22-2, ID-22-3, and ID-22-6). Double hung wooden sash windows with 6-over-6 lights are set within window openings with segmental arch headers. Window sills are constructed of brick as lug sills and are faced with a skim coat of a sand-based grout to replicate stone sills (see HAER Photograph no. ID-22-3). A single row of seven windows, measured 45 inches wide and 114 inches tall, dominate the north elevation and match two smaller, but similar, windows that flank the building's front door on the facade or west elevation. The remaining fenestration of the east elevation is configured as a lower row of three windows, which match in scale and design windows on the north elevation, and an upper row of three slightly shorter double hung wood sash windows. The scale of these second-story windows seems to match those windows on the structure's facade. All of the fenestration is intact, but, at this time, the majority of these are covered over with plywood on the building's exterior. There are no window or door openings on the structure's south elevation, which abuts a single-story drycleaning establishment (see HAER Photographs no. ID-22-1 and ID-22-7).

In addition to the abovementioned windows, the facade also has a single entry door centered on its elevation. This door is metal clad and does not appear to be original (see HAER Photographs no. ID-22-2 and ID-22-12). The building's remaining doors are located in the northeast corner of the 1921 addition. At this location, a pair of tall wooden doors at the ground level (each being 5.8 feet wide by 14.3 feet tall) are topped by a single, tall narrow door (21 feet wide by 10.6 feet tall) on the second floor.[18] The lower doors are wide enough to facilitate a motor vehicle, while the upper door was designed to accommodate a chain and pulley hoist. The extant hoist operated from an "I" beam track that projects from above the second story door out into the alley. The chain and pulley hoist moves on the "I" beam track, which runs the width of the building, and allowed for the loading and unloading of heavy substation-related equipment (see HAER Photographs no. ID-22-8 and ID-22-9). The wooden doors at this location are constructed of 2 inch by 6 inch, 1 inch by 4 inch, and wainscotting-type wood stock (see HAER Photograph no. ID-22-4).

One additional exterior door leads from the second story addition onto the roof of the structure. This door is located on a west-facing wall (see HAER Photograph no. ID-22-4) and is reached by a metal wall-mounted ladder (see HAER Photograph no. ID-22-9). The ladder's location is between the rear entry doors and the most easterly window on the interior of the north elevation. Directly adjacent to the rooftop door is a metal handrail at the roof edge along the alley. Significant rooftop features of the station include three sheet metal and glass ventilators spaced evenly across the lower roof. These rectangular ventilators project above the shed roof and are capped by metal hipped roof covers. Each ventilator has eight hopper windows, four each located side by side on their west and east elevations. A cyclone-fenced area behind the building has previously been used for storage of electrical equipment, but is now vacant (see HAER Photographs no. ID-22-5 and ID-22-6).

All transformers, switches, and electrical equipment have been removed from the interior of the substation. However, original 1914 equipment installed by government forces included:

> one bank of 30,000 to 2200 volt transformers with a normal capacity of 1050 kilowatts and a guaranteed continuous capacity of 1470 Kw. when the station temperature is 0 degree C. The station is built to contain an additional bank. The wiring for this is finished and it is planned to move a 225 Kw transformer bank from Heyburn to Burley during the summer of 1915. The station has a switch board of five 2200 volt feeder panels and two panels for operating the 30,000 volt oil switches controlling the transformer banks.[19]

During the life of the substation, interior electrical gear evolved in relation to changes in substation capacity, electrical component technology, and distribution. At present, the interior is empty with the exception of numerous wooden partitions that subdivide the interior space into separate work areas, rooms, or storage compartments (see HAER Photographs no. ID-22-8 and ID-22-9). Judging by the material type, construction techniques, and the amount of space these partitions occupy, they would appear to postdate the 1921 addition. The lack of fenestration on the station's south wall is probably related to numerous holes bored into the interior brick, no doubt to facilitate mounting control panels and an interior switchboard. Located near the front entry of the structure is a brick chimney and metal stovepipe, situated adjacent to the south wall. This flue structure was constructed for a wood stove, now gone, and appears to be a late addition to the station. The upper portion of the stovepipe projects above the roof (see HAER Photographs no. ID-22-2 and ID-22-13).

ALTERATIONS AND ADDITIONS

After initial construction, the Burley Substation received its first upgrade in 1915 with a bank of three 75 KW transformers being moved from Heyburn. This addition increased transformer capacity at Burley to 1,275 KW, which allowed the station to handle approximately 1,800 KW at zero degree weather without undue temperature rise.[20] In 1916, Burley Substation, as well as Rupert and Heyburn stations, were given new roof coverings of Elaterite roofing. Application of the new surface was contracted with Western Elaterite Roofing Company of Denver. Other improvements that same year included:

> installation of an Esterline Graphic Wattmeter in March, to measure the power delivered to the city of Burley. The maximum output of the station in December was 1,875 kilowatts. Three transformers identical with those installed at Rupert [three 75 kva delta to delta transformers] were installed during December and put into service on a separate circuit supplying the Burley High School and some other minor load amounting to a total of 325 kilowatts.[21]

The Burley station's capacity was increased in 1917 with the installation of three new 400 kilovolt-ampere transformers. These units replaced a bank of three 75 KW transformers, which were then transferred to Rupert.[22] A new switchboard panel was installed in the substation during 1918. Switchboard equipment was added to the east of the present five panels and included an ammeter, oil switch, two current transformers, overload relays, and a polyphase watthour meter. In February, lightning arrester charging current jacks were also installed.[23]

The most significant construction alteration to the Burley Substation occurred in 1921 with an addition to the station's rear that nearly doubled its interior square footage (see HAER Photograph no. ID-22-7). Plans had been made in 1920 to increase the Burley Substation capacity from 2,250 kva to 3,600 kva, an upgrade made necessary by:

> the changing character of the lead supplied from this substation so that safe operation of the transforming apparatus might be had. The lot owned by the Reclamation Service on which the Burley Substation is 60 feet by 25 feet, and preliminary designs for the substation for above increase in capacity showed that the apparatus would be in a very crowded condition if the building was only enlarged to the size of the lot owned by the Reclamation Service.[24]

The city of Burley and the USRS entered into discussion and an eventual contract, wherein:

> the Reclamation Service would extend its present substation building for a distance of 20 feet to the rear end of the lot owned by the Reclamation Service, and the city of Burley would extend the building from that point for a distance of 12 feet onto that part of the lot owned by the city of Burley. Other provisions in this contract provided that the Reclamation Service and the city of Burley would have joint use of said building, which may be used, among other purposes, as a repair room and the Reclamation Service was given permission to locate transformers in the portion of the building constructed on the land owned by the city of Burley.[25]

The city of Burley planned to continue storing transformers for urban street lighting in the enlarged substation. The construction contract for the substation addition was awarded to the firm of Overstreet and Cooper.[26]

These building contractors appear to have heen local men who suhmitted the planned project's low hid, $1312.80 for the USRS's portion of the addition and $1,584.09 for the city's share.[27] Under the terms of the contract, each party was to individually pay for their share of the building.[28] The R. L. Polk *Directory of Twin Falls, Cassia, Gooding, Lincoln, and Minidoka Counties, Idaho* for 1918-1919 included the following individuals:

> Cooper, Wm. (Mamie)[wife], bldg contractor, h[home] 244 S. Miller Ave. [Burley]
>
> Cooper, Geo H. (Amelia), bldg contractor, h 303 S. Miller Ave.
>
> Overstreet, Chas. H., carpenter, r[retired], h N. Overland Ave.[29]

Although the dates of the directory predate the construction of the 1921 addition to the Burley Substation, it is probable that the above individuals or memhers of their families were the contractors for this construction phase. Both George and William Cooper were also listed in the classified husiness directory under Contractors, Carpenters & Builders, Burley of Polk's directory.[30] William Lind was not among those contractors who submitted bids on the suhstation addition.[31] Lind had died in Portland after a long illness in 1917.[32]

In 1939, alterations were again made to structural attachments of the Burley Suhstation:

> during the month of April, new steel angle iron supports were installed on the roof of the suhstation building for the support of the 33 Kv. service wire and low tension wires leaving the station [powerlines]. The old wooden arms of the saw horse type were dismantled and the roof cleared of all obsolete construction. Three new G.E., 34 Kv. lightning arresters of the autovalve type were installed to replace the old arresters which had not been operating satisfactorily for the past two years.[33]

The station received an upgrade of its transformer equipment in September 1946:

> (3) 333-kva, single-phase, 17250; 345000/2300; 4,600 volt transformers purchased from the Anderson Ranch Dam; (2) 400/5 ampere current-transformers; (2) 300 ampere, 7,500 volt indoor oil-circuit-breaker; and (2), General Electric Company, Type IAC overcurrent-relays were installed. These transformers were installed and connected to operate in parallel with the transformer banks in service. This supplements the suhstation capacity of 3,600 kvs for the 1946-1947 winter heat load, or until proposed new outdoor substation of 6,000 kva capacity is constructed.[34]

Construction of a new outdoor Burley Substation was begun on July 1, 1948.[35] This action was part of a "general rehabilitation of the entire power system of the Minidoka Project, the substation facilities were improved and their capacities increased by the installation of new equipment and the shifting of old equipment hetween substations.[36] The new Burley Substation's steel structure was erected in January 1949, with all insulators and disconnecting switches in place.

> Between February 1 and July 31, all conduit and bus wires, switchgear, oil circuit breakers and control cable were installed; and the ground mat was placed during August. The transformers were received on December 1, then installed and painted. The substation was completed and fenced, energized on December 8 and put into service on December 12, 1949.[37]

The Burley Substation fell into disuse as a component of the Minidoka Project's electrical power distribution network with the completion of the new outdoor substation. Construction of a new substation for the city of Rupert was begun in June and that station was placed in service in December 1949. While the new Rupert Substation was being constructed, a temporary station was set up in Rupert with the bank of 1,000 kva transformers from the old Burley Substation. With completion of the new Rupert Substation, the temporary substation and the old Rupert Substation were both dismantled.[38]

CONSTRUCTION COSTS OF THE BURLEY SUBSTATION IN 1914

Component	Description	Amount
Structure	Building and foundation, labor and field superintendence	$289.63
	Material etc., including contract price	$3123.00
Equipment	Labor and field superintendence	$722.49
	Material and permanent equipment including freight hauling, etc.	$7972.12
	Engineering and superintendence	$380.18
	Depreciation of construction equipment	$.27
	Services of Government animals, travel, etc.	$120.20
	General expense a) Project general b) Chief electrical engineer **Total**	$1490.15 $98.69 $700.48 **$14,897.21**

USBOR, Boise, Minidoka Project Archive[39]

PRESENT CONDITION

The Burley Substation exhibits good exterior integrity, but its historic function has been compromised by the removal of its interior electrical components and construction of modern-era partitions to accommodate workrooms and equipment storage. However, the interior and exterior of the shell of the structure is intact, including fenestration and exterior doors, with the exception of the front entry door. At present, the structure's windows are covered over with plywood, but none of the windows have been removed or replaced.

The skillful execution of the 1921 addition was such that casual observers of the structure are unaware of the structure's morphology. Overstreet and Cooper's duplication of the original substation's building materials, style, and form was exact and uncompromising. Since the station has been in the holdings of BPA, some repair has been performed on the roof and brickwork of the structure.[40] Nevertheless, deterioration and water damage of the brick walls are visible at the top of the northeast corner of the east elevation and at the break between the two construction phases on the south and north walls (see HAER Photographs no. ID-22-6, ID-22-10, and ID-22-11).

HISTORIC CONTEXT

Construction of the Burley Substation was prompted by the developing potential of a commercial power market, at first, a minor footnote to irrigation efforts in the early history of the Minidoka Project. The project had begun as one of the first USRS enterprises, after the June 1902 passage of the National Reclamation Act.[41] The village of Burley's electrical power was delivered through the new station, beginning on the evening of Wednesday, January 21, 1914.[42] Completion of the station remedied the Burley condition, wherein electrical demand had outstripped available supply.[43] The commercial power aspect of the Minidoka Project had grown so rapidly that, as well as construction of the Burley Substation, the Reclamation Service, that same year, increased transformer capacity in the Rupert and Heyburn substations and built a transmission line linking the Burley station with the second lift of the South Side Irrigation Pumping Station.[44] The Burley Substation at this time contained five feeder panels: three that supplied the village, one for the sugar factory and alfalfa mill, and one for the USRS buildings in Burley.[45] The station's location was chosen by the village's Board of Trustees, who agreed to:

> deed the front half of Lot 11, Block 122, in the townsite, to the United States free of cost and held a special election to validate this agreement. The franchise and deed to the station site were accepted by the Government on October 11.[46]

Federal interest in investigating the irrigation possibilities of southern Idaho began in 1889 and 1890 under the direction of the United States Geological Survey. These surveys included examination of lands which eventually became part of the Minidoka Project.[47] Subsequent surveys in 1902 and 1903 resulted in the construction recommendation by the project's Boar of Engineers on March 21, 1904. The scale of the Minidoka Project necessitated construction of Minidoka Dam, reservoir storage, canals for distribution of irrigation water, and pumping station to lift water to high lands of the district. A power plant was constructed to supply electricity for pumping purposes and only secondarily for commercial power sales:

> When the Bureau of Reclamation built the Minidoka project, it didn't think of it as benefitting the project, except for pumping purposes. When it was found that there was a surplus of

> current for the settlers, it applied the profits to reduction of the construction costs. When the construction charges are paid out, the profit goes toward the operation and maintenance charges; and if there is then any surplus, that money is to be paid out as a cash distribution to the water users.[48]

As of the 1915 irrigation season, the nearly-completed Minidoka Project was supplying water to 118,300 acres. Irrigation water was distributed through a system of canals, lateral canals, principal drains, and secondary drains. Project lands north of the Snake River were part of the Gravity Division, while most of the lands located south of the river were apportioned to the South Side Pumping Division. A strip of land along the Snake River's south side and located south of Lake Walcott was assigned too the Gravity Division, however. Both districts utilized pumping stations, where necessary, but as the name implies, the majority of lands in the Gravity Division were gravity fed.

Plans of USRS for the region included the platting of three project townsites, Scherrer (later changed to Acequia) Rupert, and Heyburn. The towns of Rupert and Heyburn were the first to be developed, but all of these planned communities were situated on the route of the proposed Minidoka and Southwestern Line, a branch of the Oregon Shortline Railroad. When the railroad branch was constructed in 1905, sidings were established in each of the towns.[49] Unfortunately for the plans of the Reclamation Service, several sections of unpatented land were located within the area of the pumping unit and private developers offered lots for sale in the new town of Burley on May 1, 1905, several months before the sale of the first Heyburn lots. I. B. Perrine, of Twin Falls, platted 600 acres in Section 20, T10S, R23E, giving the Burley townsite a headstart over the USRS towns.

Burley began to increase in size even before irrigation water became available from the Minidoka Project and grew to become the regional trading center within a very few years. With private influences to advertise and foster its growth, Burley was destined from the start to thrive at the expense of the project townsites. Additionally:

> As the funds derived from the sale of the lots were apparently not available for use in constructing municipal improvements in the Government towns, the latter were handicapped considerably. The amount of taxable property was too small for several years to justify any notable advance.[50]

Irrigation water for all of the towns was supplied by the Minidoka Project on a rental basis and, with the completion of the power plant at the dam site, electricity was provided at a low price for municipal and household use.[51] A transmission system had been developed to distribute current to the pumping stations and local towns. Construction of the first of these lines was begun in 1905 by day labor, with the replacement of heavy wooden poles, except where steel towers spanned the river crossings.[52] According to USRS records, commercial power sales had always figured in the success of the Minidoka Project:

> This feature had always been carried in mind as being a desirable development for the use of excess capacity. Especially during the winter months when the irrigation requirements of the pumping lands were not active, it was recognized that upon completion of the installation [power plant], there would be a large amount of power available for which a market should, if possible, be found.[53]

The village of Burley had also gained its own Oregon Short Line Railroad connection and then incorporated in July 1909; the County Commissioners having satisfied themselves that those who had petitioned for this action (not less than 200 and not more than 1,000 inhabitants, actual residents of the territory) were in fact the taxable residents of the proposed incorporation.[54]

A local newspaper of the period indicated that there was a fair amount of difficulty in finding responsible parties to distribute power to the towns:

> contracts were finally made between the Government and the Rupert Electric Company of Rupert, E. B. Skinner of Heyburn, and the Board of Trustees of the village of Burley, under which the Government agreed to deliver power at 2,200 volts near the center of each town.[55]

Delivery of electrical power under these agreements began in October 1910. To meet the demand caused by the growth of urban needs, the load capacity of the equipment of the Rupert and Heyburn substations was doubled in 1912 and a new transmission line was built between Burley and Pump Station 2, plus the construction of the Burley Substation in 1913 and 1914. Prior to that date, the village of Burley had received its power through the Heyburn Substation. The need for power at Burley included urban supply, the offices of the USRS, nearby farms, and industry.

Business interests in Burley had courted and arrested the interest of the Amalgamated Sugar Company. Based upon promises of a willing work force, a guaranteed acreage of sugar beets to be planted in the region (few farmers grew them at the time), and inexpensive electrical power, the Burley Sugar Factory was constructed in 1912.[56] Industrial development prior to construction of the sugar factory included a flour mill and warehouse in 1909. Its crib elevator was added the following year and, in 1912, a concrete tank was constructed. the 1917 capacity of the Burley Flour Mill was 350 barrels a day, which was then increased to 675 per day in 1923.[57] A large restaurant and bakery, in which "all the cooking is done electrically," and The Portland Feeder Mill (alfalfa feed mill) were numbered as significant 1913 improvements in Burley.[58] During the summer of 1915, the all-electric Burley High School was erected, proclaimed at the time as the "largest electrically heated building in the world."[59] According to a 1915 report, the growth of the use of electrical current within the towns of the project was much more rapid than initial Government expectations, resulting in the taxed ability of the distribution contractors in meeting demand.[60]

Burley maintained a unique privilege in Idaho by owning its own electrical distribution system.[61] Electrical power was sold directly to consumers by the Burley city government, after USRS delivered current to the Burley Substation. Electricity quickly became the preferred regional power source:

> The residents of the 3 towns on the project enjoy the use of the electrical current at a less cost than any other community known. Their houses are heated with it and their food is cooked with it. There is nothing strange to see houses built without chimneys and the towns are becoming smokeless communities.[62]

By 1919, Burley's demand for power had dramatically risen from the increased use of electrical appliances for residential cooking and hot water heating, as well as from greater demand by industry and local farmers.[63] Itemized new appliance installations of 1919 included:

Number of Units	Appliances	Percentage of Increase Over Previous Year
47	electric range	71%
36	water heater	31%
179	electric iron	33%
168	washing machine	125%

USBOR, Burley, Minidoka Project Archive[64]

The total 1919 load increase for lighting and appliances in the city of Burley was about 1,000 kilowatts, a 50 percent rise from the year before.[65] Demand increased, as the region's population grew, but a market for electrical power use was being created by increasing public awareness to the possibilities of electrical power application. Newspapers of the time contain notices for public lectures concerning the benefits of electrical power. Similarly, farmers of the region were being invited to lectures to increase their awareness:

> In order to give the farmers a better idea of the problems [including power distribution and the impossibility of USRS-financed building of distribution lines], a lecture was arranged March 12th, in both Rupert and Burley, on the "Use of Electricity on the Farm and in the Home". This was given to H. T. Plumb of the General Electric Company, and formerly professor of Electrical Engineering at Purdue University.[66]

Interest by farmers for ranch use was increasing, and even though initial power use by individual farmers was assumed to be very low, it was expected by USRS engineers that farm consumption would increase with the use of "new apparatus which substitute electricity for manual energy."[67] The region's population of both farms and towns steadily grew during this period. Individuals living on farms increased from 5,201 to 5,801 between 1913 and 1914, while the number of towns increased from three to four. At this time, town populations grew from 3,000 to 3,450 individuals.[68] The Federal census of 1920 listed the population of Burley at 3,408 and in 1930 at 3,826.[69]

Through the contract arrangement agreed upon by Burley and the Federal Government, the city was able to finance numerous community improvements. Burley distributed electricity to consumers at a profit through its municipally-owned system, as previously stated. Revenues for the fiscal year ending April 30, 1946, amounted to $184,678, with an expenditure of $129,336 on the system, resulting in a net profit of $55,342. Net profits for the years 1940-1947 amounted to $354,422. These monies were then applied to civic projects, "which would otherwise have been impossible and has enabled the city to operate on a very low tax assessment."[70] Until its replacement in the 1940s, the Burley Substation played a vital role in the distribution of electrical power from Minidoka Dam, which initiated the region's historic development and sustains its continued settlement and economic growth.

SUMMARY

The Burley Substation is a representative transmission component of early twentieth century hydroelectric development. The station contributed to the economic growth of southern Idaho as a distribution facility for electrical current generated by the United States Reclamation Service's Minidoka Project. The project facilitated the furtherance of agriculture by way of irrigation, rural and urban growth, and the creation of a commercial power market. Settlement of this portion of the American West was a direct result of the regional development of inexpensive electrical power and the irrigation distribution system of the Federal Government's Minidoka Project.

FOOTNOTES

1. USRS, *Twelfth Annual Report of the Reclamation Service 1912-1913,* 1914:94, 95. Washington: Government Printing Office. History Room of the De Mary Memorial Library, Rupert, Idaho.

2. USRS, *Twelfth Annual Report of the Reclamation Service 1912-1913, 1914:94.*

3. USRS, "Annual Project History, Report of Construction and Operation, Minidoka Project," Vol. 8, 1914:95. USBOR archives, Boise, Idaho.

4. James M. Gaylord, "Power and Pumping System of the Minidoka Project, Idaho, to June 30, 1913," 1913:Figure 24. I On file, USBOR, Minidoka Project Headquarters, Burley, Idaho.

5. USRS, *Fourteenth Annual Report of the Reclamation Service, 1914-1915,* 1915:97. Washington: Government Printing Office. History Room of the De Mary Memorial Library, Rupert, Idaho.

6. USRS, "Annual Project History, Report of Construction and Operation and Maintenance, Minidoka Project, Idaho," Vol. 15, 1921:85-89. USBOR archives, Boise, Idaho.

7. USBOR, "1949 Annual History of the Minidoka Project," Vol. 42, 1949:25. USBOR archives, Boise, Idaho.

8. Keo Boreson, "Old Burley Substation," Idaho State Basic Documentation Form, 1990:Continuation sheets. On file, Idaho State Historical Society, Office of Historic Preservation, Boise, Idaho.

9. USRS, "1919 Minidoka Project History, Commercial Power Only," 1919"n.p. On file, USBOR, Minidoka Project Headquarters, Burley, Idaho.

10. USRS, "Annual Project History, Report of Construction and Operation, Minidoka Project," Vol. 8, 1914:95.

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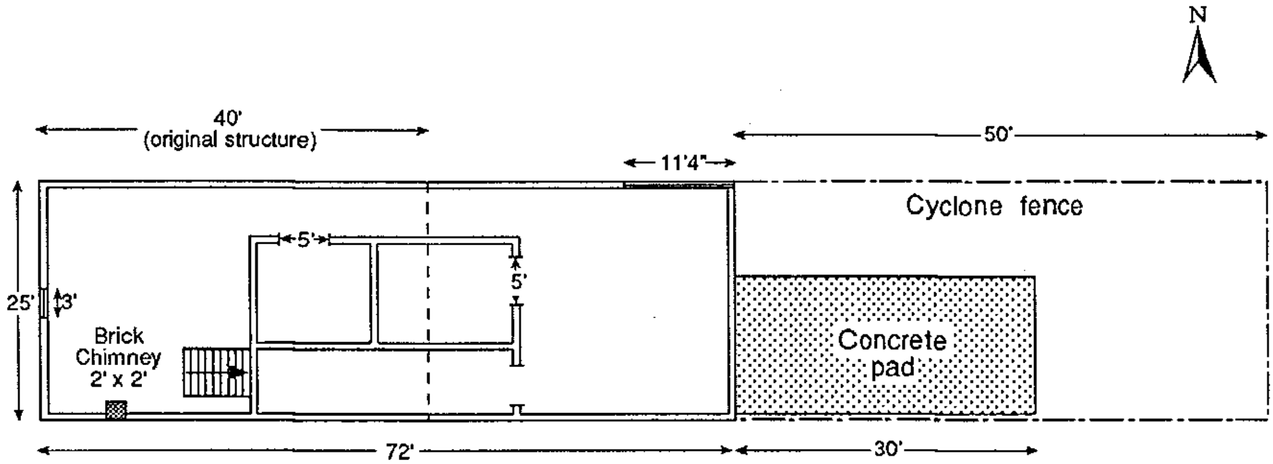

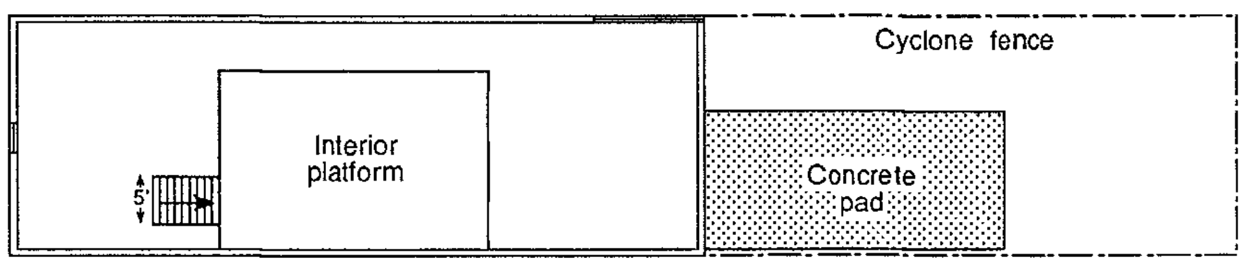

Site Plan of Bonneville Power Administration Burley Substation, May 1992.